



Competency 2.1 Industrial hygiene personnel shall demonstrate the ability to evaluate the adequacy of local compliance with the following document sections:

29 CFR 1910, Occupational Safety and Health Standards such as the following:

- **1910.20 - Access to Employee Exposure and Medical Records**
- **1910.120 - Hazardous Waste Operations and Emergency Response**
- **1910.146 - Permit-Required Confined Spaces**
- **Subpart G - Occupational Health and Emergency Response**
- **Subpart H - Hazardous Materials**
- **Subpart I - Personal Protective Equipment**
- **Subpart J - General Environmental Controls**
- **Subpart K - Medical and First Aid**
- **Subpart Q - Welding, Cutting, and Brazing**
- **Subpart Z - Hazardous Substances**

29 CFR 1926, Safety and Health Standards such as the following:

- **Subpart D - Occupational Health and Environmental Control**
- **Subpart E - Personal Protective and Life Saving Equipment**
- **Subpart H - Material Handling, Storage, Use, and Disposal**
- **Subpart J - Welding and Cutting**
- **Subpart Y - Record-keeping**
- **Appendices A&B to Subpart Y - Examples of conditions which may restrict or limit exposure to hyperbaric conditions and guidelines for scientific diving**
- **Subpart Z - Toxic and Hazardous Substances**

Industrial hygiene-related technical standards such as the following:

- **40 CFR 763 - Asbestos**
- **ANSI Z88.2 - Practices for Respiratory Protection**



Competency 2.1 (Continued)

- **ANSI Z88.6 - Respiratory Protection, Respirator Use, and Physical Qualifications for Personnel**
- **ANSI Z136.1 - Safe Use of Lasers**
- **ANSI Z117.1 - Safety Requirements for Working in Tanks and Other Confined Spaces**
- **ANSI Z358.1 - Emergency Eyewash and Shower Equipment**
- **ANSI C95.1 - Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100GHz**
- **ACGIH TLV Booklet - American Conference of Governmental Industrial Hygienists Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices**

1. Supporting Knowledge and Skills

- a. Describe the purpose, scope, and application of the requirements detailed in the listed document sections.
- b. Discuss the process by which Department line management determines an appropriate level of coverage by industrial hygienists. Include in this discussion factors that may influence the level of coverage.
- c. Discuss what constitutes acceptable contractor work performance consistent with the requirements of the above regulations and technical standards.
- d. Using selected sections from 29 CFR 1910, 29 CFR 1926, and technical standards, prepare an action plan that adequately outlines interviews and observations, and details documents to review during an evaluation of contractor compliance against the requirements of the selected sections.
- e. Using an appropriate level of coverage, evaluate contractor compliance with the requirements of selected sections of 29 CFR 1910, 29 CFR 1926, and technical standards. During this evaluation, demonstrate the ability to properly conduct interviews, observations, and document reviews.
- f. Given data from an evaluation, analyze the results of the evaluation to determine contractor compliance or noncompliance with the requirements.



- g. Given the results from an analysis of contractor compliance or noncompliance, document the results to contractor and Department line management.

2. Recommended Reading

Review

- The index of 29 CFR 1910, “Occupational Safety and Health Standards,” to gain a familiarity with the general organization and content of the document.
- The index of 29 CFR 1926, “Safety and Health Standards,” to gain a familiarity with the general organization and content of the document.
- The index and/or the table of contents for each of the following:
 - 40 CFR 763, “Asbestos”
 - ANSI Z88.2, “Practices for Respiratory Protection”
 - ANSI Z88.6, “Respiratory Protection, Respirator Use, and Physical Qualifications for Personnel”
 - ANSI Z136.1, “Safe Use of Lasers”
 - ANSI Z117.1, “Safety Requirements for Working in Tanks and Other Confined Spaces”
 - ANSI Z358.1, “Emergency Eyewash and Shower Equipment”
 - ANSI C95.1, “Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100GHz”
 - ACGIH, 1995-1996 (or current), Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs).

3. Summary

In general, DOE line management must provide coverage sufficient to verify contractor compliance with applicable mandatory standards. At a minimum, this will require the verification that the contractor program defensibly meets all applicable requirements, with the emphasis on the requirements relating to the technical adequacy of exposure assessment and control, and the related documentation. Better quality DOE oversight will include detailed and quantitative observation of procedures, sampling sheets, databases, training and health records, and field surveillance, with emphasis on technical adequacy as opposed to compliance with local procedures.



In general, acceptable contractor work performance will, at a minimum, consist of nominal or defensible compliance with all mandatory requirements. This level of requirement should require some sort of documentation that all required program elements are in place; however, what constitutes the adequacy or detail of documentation will vary. Better contractor programs will be able to document compliance through quantitative internal assessments or statistical evaluation of sampling data upon which exposure assessments and control strategies are based.

DOE requires contractor adherence to a mixture of federal regulations and national consensus standards. Because sometimes these contain conflicting guidance, DOE requires that the most protective guidance be used, and this requires referencing guidance from different sources for the same program. Therefore, assessing a single component of program adequacy with respect to compliance will probably require knowledge and skill in the interpretation of guidance from more than one source, as well as the ability to technically evaluate related exposure issues. Industrial hygiene-related contents of the listed documents include the following:

29 CFR 1910

1910.20 contains requirements relating to employee and other person's access to, and retention of, employee sampling and medical records (with respect to personal sampling specifically that employees shall have access to their personal sampling data and to the data of personnel similarly exposed, and that their unions shall have access to the same data).

1910.120 (see subpart H below)

1910.146 (see subpart J below)

Subpart G

1910.94 contains antiquated ventilation requirements that, in general, will not be enforced unless the potential for overexposure is demonstrated.

1910.95 contains detailed requirements for noise control and hearing conservation.

1910.96 and 1910.97 contains antiquated requirements for the ionizing and nonionizing radiation and is superseded by other mandatory DOE guidance.



Subpart H

1910.106 contains requirements for the safe storage of flammable and combustible materials.

1910.107 contains the requirement for ventilation during the spray finishing of flammable materials.

1910.120 contains detailed requirements for the development and implementation of a comprehensive safety and health program at hazardous waste cleanup sites, and also requirements for hazardous material cleanup responders.

Subpart I

1910.132 contains general requirements for the use of personal protective equipment, its selection, and the training of personnel in its use.

1910.133 contains requirements for the selection and use of eye and face protection.

1910.134 contains quite general and very antiquated requirements for the selection and use of respiratory protection (more useful guidance is found in ANSI Z88.2 and Z88.6).

1910.138 contains requirements for the selection and use of hand protection.

Subpart J

1910.146 requires the establishment of permit-required confined space entry programs, and includes the requirement for listing of required spaces; the training of personnel with functions related to entry; the development, use, and maintenance of a permitting system; and the performance of monitoring prior to entry and sometimes during occupancy.

Subpart K

1910.151 lists general requirements relating to medical services and the requirement for eyewashes in certain work places.

Subpart Q

1910.252-254 lists requirements relating to welding including the use of eye and face protection and screens, the separation of flammable and combustible materials from the welding operation, and antiquated ventilation requirements.



Subpart Z

1910.1000-1050 contain OSHA Permissible Exposure Limits (PELs) for chemical substances and comprehensive standards for specific chemical compounds.

1910.1200 contains detailed requirements for the communication of information related to the potential hazards of chemicals used in the work place.

1910.1450 contains requirements for safety and health programs for laboratories.

29 CFR 1926

Subpart D

1926.56 contains antiquated illumination requirements for construction work places (more current guidance for recommended lighting for any work environment is found in the *Illuminating Engineering Society (IES) Lighting Handbook*, current edition).

Subpart E

1926.103 contains general and antiquated requirements for the use of respiratory protection in construction work places (more useful guidance is found in ANSI Z88.2 and Z88.6).

Subpart J

1926.354 contains requirements relating to welding including that toxic coatings be removed to within four inches of the point of hot work.

Subpart Y

Contains requirements relating to diving and, therefore, potential hyperbaric exposure.

Subpart Z

Contains OSHA expanded standards governing exposure to hazardous chemicals that are, in general, comparable to general industry requirements.



Industrial hygiene-related technical standards include the following:

40 CFR 763 relates to asbestos abatement in schools, but also contains training requirements that are now applicable to asbestos removal and maintenance personnel in the work place.

ANSI Z88.2 contains guidance mandatory in DOE relating to the use of respirators in the work place.

ANSI Z88.6 contains guidance for the physical qualification of respirator users and is referenced in the DOE *RadCon Manual*.

ANSI Z136.1 contains guidance, mandatory in DOE, listing the detailed requirements for the establishment of a program governing the safe use of lasers.

ANSI Z117.1 contains guidance governing safe work in confined spaces, but is not currently mandatory in DOE and has been largely superseded by OSHA 29 CFR 1910.146.

ANSI Z358.1 contains guidance for the operation and placement of emergency eyewashes and safety showers.

ANSI C95.1 contains current and specific guidance regarding allowable exposure to radiofrequency (RF) radiation in light of the antiquity of 29 CFR 1910.97.

ACGIH TLV Booklet contains listing of allowable exposure limits to chemical and physical agents and is mandatory in DOE. When a conflict exists between ACGIH and OSHA, the most protective criterion level is to be used.

4. Suggested Exercises

Please refer to Scenarios 4, 7, and 9 in the Scenario section of this document.